

Work Order ID 159900

Wednesday, April 19, 2017 2:07:18 PM

159900

Page 1

Item ID: D3564-13 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Wearpad Fwd
Start Date: 4/23/2017 Start Qty: 40.00 ***40*** Cust Item ID:
Required Date: 5/1/2017 Req'd Qty: 40.00 ***40*** Customer:
Reference: (P.A.)SCHEDULED/S

Approvals: Process Plan: DAS 21 Date: APR 20 2017 Tooling: _____ Date: _____ Run Start ***NR1***
QC: 9-89 Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3564	E								
100	FLOW WATER JET	0.01							
100									
Waterjet	Memo	2.56							
FLOW CNC Waterjet	1-Cut as per Dwg D3564 Dwg Rev: <u>E</u> Prog Rev: <u>E</u> 2-Deburr if necessary								
110	QC2- Inspect parts off machine FAI/FAIB	0.00							
110									
QC	Memo	0.40							
Quality Control									
120	QC8- Inspect parts - second check	0.00							
120									
QC	Memo	0.80							
Quality Control									

APR 24 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
					QC / QA Coordinator Approval				

Root Cause				FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐		
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐		
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐		
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐		
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐		
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐		
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐		
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐		
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐		
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐		
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____					
Misidentified ☐	Past Due ☐						

DQA: _____ Date: _____



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Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
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Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
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Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
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Page 3

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Required Date: 5/1/2017 Req'd Qty: 40.00 ***40*** Customer:
Reference: (P.A.)SCHEDULED/S

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 *160* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.40				<u>42</u>			DAS 38 9-89 MAY 01 2017
170 *170* Packaging Packaging	Identify as per dwg & Stock Location: <u>FP-001</u> Memo LOCATION : FP001	0.00 0.40				<u>x42</u>	<u>q</u>	<u>911</u>	<u>13/05/02</u>
180 *180* QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 4.00							<u>17/5/4</u> <u>98</u>

MAY 02 2017

DAS
21
9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐					
		OTHER : _____							

Picklist Print

Wednesday, April 19, 2017 2:07:18 PM

Page 1

Work Order ID: 159900

159900

Parent Item: D3564-13

D3564-13

Parent Item Name: Wearpad Fwd

Start Date: 4/23/2017

Required Date: 5/1/2017

Start Qty: 40.00

Required Qty: 40.00

Comments: IPP Rev:A New Issue 07-03-08 ec
IPP Rev:B As per Rev C 07-07-09 JLM
IPP Rev:C As per Rev D 07-09-09 JLM Verified By:EC
IPP Rev:D Comments revised on Step 5, 6 per B44657 09-02-04 KJ
Verified By:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304S16GA		Purchased	No			100	sf	106.3320	0.222	9.347368			

M304S16GA

304/316 Sheet .063

**

04/17/04/24

Location

Loc Qty

Loc Code

MAT010

106.332

m136896

0.3

m137110

0.532

m137175

1.1

m137263

104.4

9.5

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

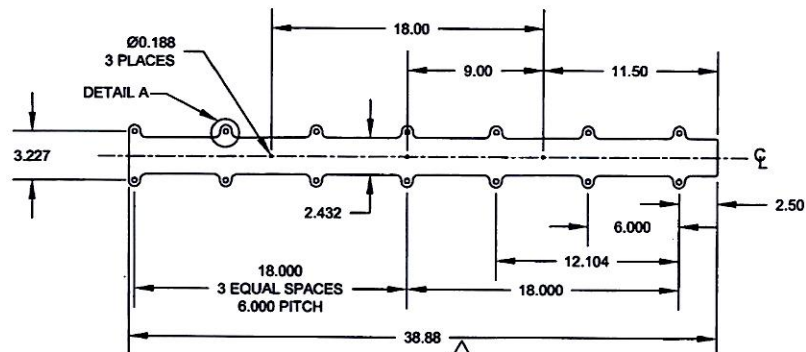
Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
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Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		☐ OTHER : _____							

2.285
3.080"
FS
17/04/20
0,062

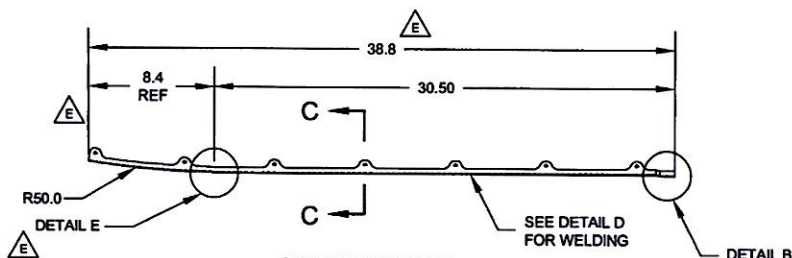
☒ **First Article** ☐ **Prototype**

2.285
3.080"
FS
17/04/20
0,062

DAS
38



D3564-1F WEARSHOE
(FLAT PATTERN)



D3564-1 WEARSHOE
BENDING DETAIL
(MAKE FROM D3564-1F)

D3564-1/-3/-5/-7/-9/-11/-13/-15 WEARPLATE NOTES:

- 1) MATERIAL: AISI 304/316 STAINLESS STEEL SHEET ANNEALED
PER MIL-S-5059 OR AMS 5513 (304) OR AMS 5524 (316)
OR ASTM A240 OR ASME SA240
REF DART MATERIAL SPEC M304S16GA
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.015 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: SEE TABLE IN ZONE A3
- 8) WELD PER DART QSI 004
- 9) SEE PG 3 FOR SECTIONS AND DETAILS
- 10) PARTS ARE SYMMETRIC ABOUT ϕ
- 11) BUILDUP HARD SURFACING 0.06 TO 0.13 THICK USING 8259 ROD PER QSI 004 SECTION 4.5 (AUTOMATED WELDING) OR
BUILDUP HARD SURFACING 0.06 TO 0.13 THICK USING 2059B ROD PER QSI 004 SECTION 4.1 (MANUAL WELDING)
- 12) COAT ENTIRE TOP (CONCAVE) SURFACE WITH TEXTURED COATING 0.020-0.040 THICK, PER DART QSI 005 4.9

SHOP COPY

RETURN TO

ENGINEERING

UNCONTROLLED COPY

SUBJECT TO AMENDMENT

WITHOUT NOTICE

WORK ORDER

NO. 159900 MJS

1704-Z6

RELEASED
2017-06-12
EN 17-53

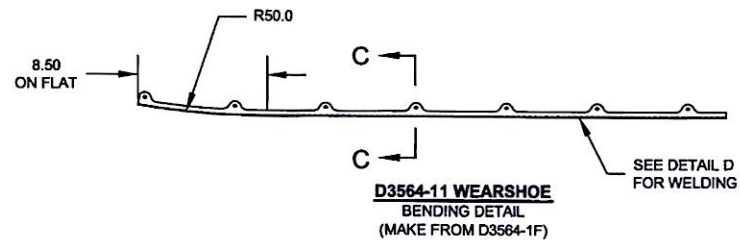
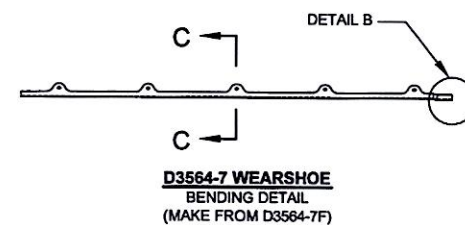
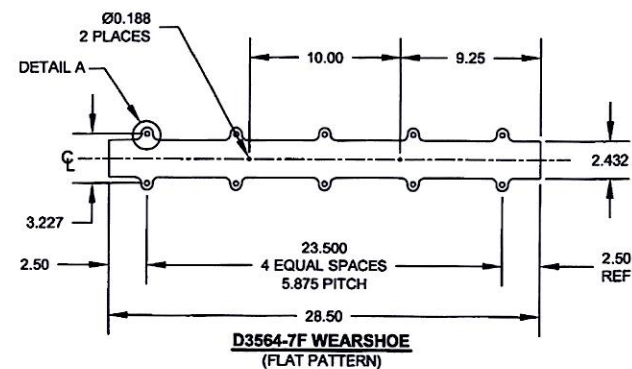
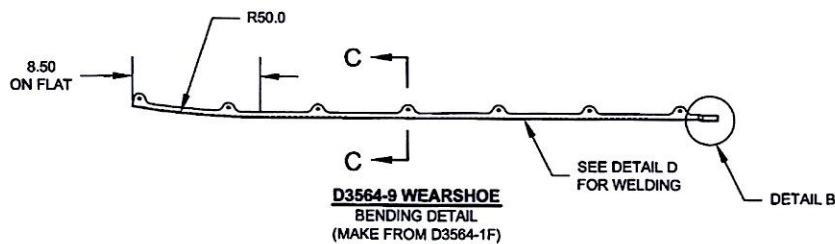
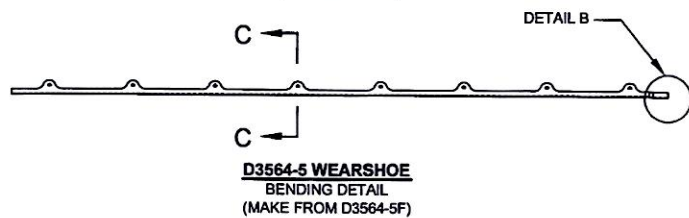
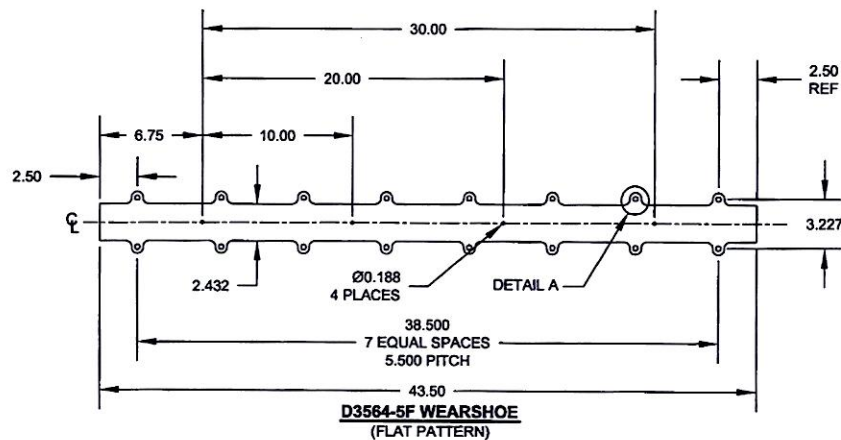
WEIGHTS:

D3564-1	1.85 lbs
D3564-3	1.85 lbs
D3564-5	1.93 lbs
D3564-7	1.26 lbs
D3564-9	1.85 lbs
D3564-11	1.85 lbs
D3564-13	0.38 lbs
D3564-15	0.80 lbs

D3564-3 WERESHOE

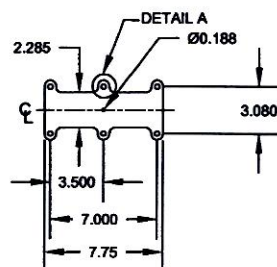
BENDING DETAIL
(MAKE FROM D3564-1F)

E	UPDATED DRAWINGS TO CURRENT STANDARDS, SHEET 1: UPDATE MATERIAL (NOTE 1), ADD NOTES 11 & 12, FINISH REMOVED, UPDATE DIMS -1,-3. REASON ROBOTIC WELD.SHEET 3: ADD DETAIL E, 3.080 DIM WAS 3.227 AND 2.285 DIM WAS 2.432. REASON: DESIGN ERROR.	SAD	17.01.04
D	UPDATE DRAWING TEMPLATE; CHANGE ALL (TYP X PLS) TO (X PLACES); PG1 A8, PG3 B5,C5: ADD D3564-15; PG1 B6,B3: D3564-1/-3 WAS ONE FIGURE; PG2 A7,A3: D3564-9/-11 WAS ONE FIGURE; PG2 A7,A3: D3564-9/-11 WAS ON PG1; PG3 B8,C8: D3564-13 WAS ON PG2; PG3 D2: WELDING DETAIL WAS ON PG1 PG3 A5,7,B2: RELOCATE DETAILS AND SECTION; PG3 A5,7,B2: INCREASE DETAIL AND SECTION SIZE	CB	07.08.21
C	MOVE TAB OUTBOARD, DETAIL A	PH	07.04.17
B	ADD AMS 5513 AND AMS 5524	PH	07.03.20
A	NEW ISSUE	PH	06.12.18
REV.	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	AS	DRAWING NO.	REV. E
MFG. APPR.	M	D3564	SHEET 1 OF 3
APPROVED	CA	TITLE	SCALE
DE APPR.	CA	WEARSHOE	NTS
DATE	17.01.04	COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	

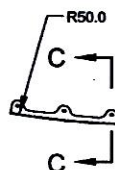


RELEASED
2017-04-12

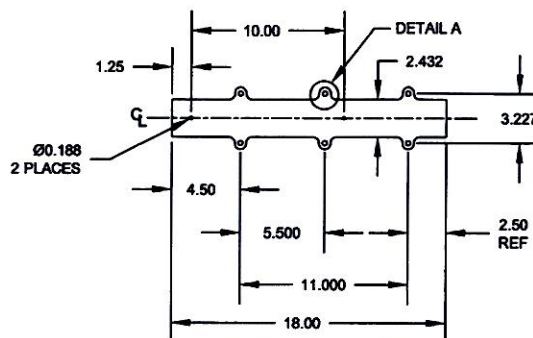
DESIGN	PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	ADS	DRAWING NO.	REV. E
MFG. APPR.		D3564	SHEET 2 OF 3
APPROVED		TITLE	SCALE
DE APPR.		WEARSHOE	NTS
DATE	16.01.04	COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



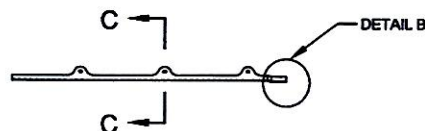
D3564-13F WEARSHOE
(FLAT PATTERN) E



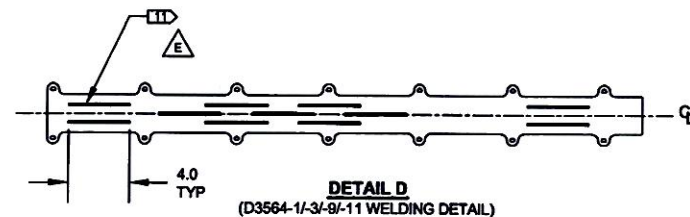
D3564-13 WEARSHOE
BENDING DETAIL
(MAKE FROM D3564-13F)



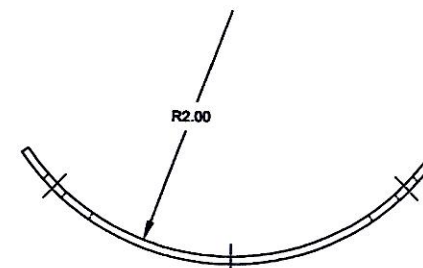
D3564-15F WEARSHOE
(FLAT PATTERN)



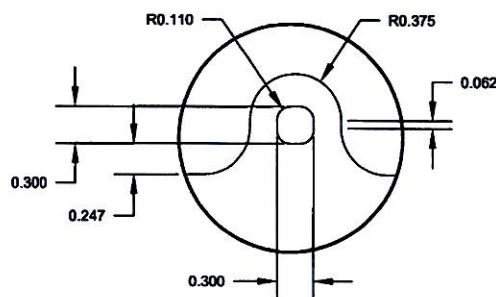
D3564-15 WEARSHOE
BENDING DETAIL
(MAKE FROM D3564-15F)



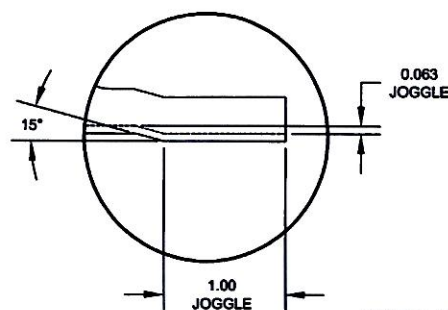
DETAIL D
(D3564-1/3/9/11 WELDING DETAIL)



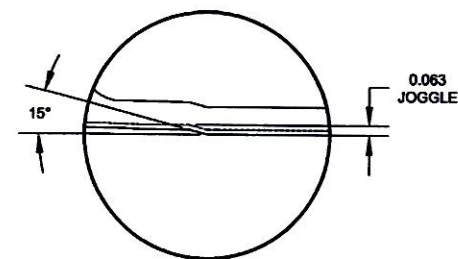
SECTION C-C
SCALE 1X



DETAIL A
SCALE 8X



DETAIL B
SCALE 8X



DETAIL E
SCALE 5X E

DESIGN	PH	DART AEROSPACE LTD	
DRAWN	SAD	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. E
MFG. APPR.		D3564	SHEET 3 OF 3
APPROVED		TITLE	SCALE
DE APPR.		WEARSHOE	NT
DATE	17.01.04	COPYRIGHT © 2006 BY DART AEROSPACE LTD	
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2017-04-12